

# PATENT COOPERATION TREATY

TS Eingang

09. Dez. 2004

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

ZF FRIEDRICHSHAFEN AG  
D-88038 Friedrichshafen  
ALLEMAGNE

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

08.12.2004

Applicant's or agent's file reference  
8520 WO PA-FRI

## IMPORTANT NOTIFICATION

International application No.  
PCT/EP 03/10759

International filing date (day/month/year)  
26.09.2003

Priority date (day/month/year)  
01.10.2002

Applicant  
ZF FRIEDRICHSHAFEN AG et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:



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# PATENT COOPERATION TREATY

# PCT

REC'D 09 DEC 2004

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)



PCT

Applicant's or agent's file reference 8520 WO PA-FRI	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 03/10759	International filing date (day/month/year) 26.09.2003	Priority date (day/month/year) 01.10.2002
International Patent Classification (IPC) or both national classification and IPC F15B11/042		
Applicant ZF FRIEDRICHSHAFEN AG et al.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
  - ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

- This report contains indications relating to the following items:
  - I ☒ Basis of the opinion
  - II ☐ Priority
  - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☐ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  15.04.2004	Date of completion of this report  08.12.2004
Name and mailing address of the International preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Sbaihi, M  Telephone No. +49 89 2399-8436 

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/10759**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

**Description, Pages**

1-12 as published

**Claims, Numbers**

3, 4 as published

1, 2 received on 24.11.2004 with letter of 22.11.2004

**Drawings, Sheets**

1/5-5/5 as published

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/10759**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 1-4

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

**see separate sheet**

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

**Re Item III**

**Reasoned statement with regard to lack of clarity of the claims (Art. 6 PCT)**

The application does not meet the requirements of Article 6 PCT, because the claims are not clear: in general, the definitions of the components and their interconnection in the hydraulic device claimed are incomplete for a clear understanding of the invention and in contradiction with the hydraulic schematics of the description: the functions of the components described seem to be different from the definition claimed and recognised in the art, and finally the claims, as written, do not allow the skilled person to define how the different components are connected together. Hereafter are the major unclarities listed:

The claimed device comprises the following components:

- a pump (10);
  - two solenoid valves (13,14);
  - a bistable valve(15);
  - a control valve (16);
  - a "shuttle type sequence" valve (19);
  - a valve (21)
- in general, the characteristics "bistable", "solenoid", "control" define specific features applicable to a large number of valve types and are not sufficient to clearly define the functions (control, interconnections) of the valves which are here essential for the comprehension of the invention;
- the valve 15 is claimed as a "bistable valve" what means that it can be any valve with two stable positions where an input signal is necessary to bring the valve from one position to the other. The function of the valve within the device is unclear; in addition, this "bistable valve is arranged in parallel between the solenoid valves and the pistons": it is not clear to what part of the circuit the parallel arrangement is performed (looking more specifically at the schematic fig. 5 no parallel arrangement can be found: the valve is not parallel but connected to each of the lines between the solenoid valves and the pistons;
- "control valve 16 equipped with an adjusting device", "a spring element of the adjusting device is linked to the bistable valve" : the valve is broadly defined and it is not clear what is adjusted and what is the function of the valve; more over, the second

characteristic seems to define a mechanical link rendering the characteristics and the function of the valve more unclear;

- the term "shuttle type sequence valve" is unclear: the shuttle valve and the sequence valve are two different types of valves as recognised in the art (a "shuttle valve" is normally a 3 Ways/2 Positions valve having two inlet ports and one outlet port and which function is that the inlet port connected to the higher pressure is automatically connected to the outlet port while the other inlet port is closed; a sequence valve is normally a valve initially closed that switches at a predefined pressure level sensed on the input port and delivers flow to the output port when switched), and such a definition does not allow the skilled person to understand the function and the interconnections of such a valve;

- the expression "suitable arrangement of lines" used in claim 2 has no well-recognised meaning and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claim unclear; the same objection is applicable to the expression "technically produced by means of a suitable arrangement" in the claim 3;

- claim 4 contains references to the description and the drawings. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here;

- in addition, the vague and imprecise statements in the description on page 12 implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in more lack of clarity (Article 6 PCT) when used to interpret them.

**Due to the lack of clarity in the application, the subject-matter to which a protection is sought could not be clearly established, neither through the claims, nor through the description, so that no opinion could be given as to Novelty, Inventive step and Industrial applicability.**

Patent Claims

1. The invention relates to a device for the optimization of hydraulically controlled engagement of clutches used in marine transmissions and comprises pumps (10) for the delivery of hydraulic fluid from a reservoir (11) to two control pistons (12a, 12b) of said clutches, two solenoid valves (13, 14) arranged between said pumps (10) and said pistons (12a, 12b), a bistable valve (15) arranged in parallel between said solenoid valves (13, 14) and said pistons (12a, 12b), a control valve (16) arranged on the pressure side of said pumps (10) toward the discharge line leading to the reservoir (11) and equipped with an adjusting device (17), whose spring element (18) is linked to said bistable valve (15), whereby said device for engagement optimization is characterized in that it comprises a shuttle-type sequence valve (19) on the link between the spring element (18) of said adjusting device (17) and the supply line of said solenoid valves (13, 14) or said bistable valve (15), whereby this bistable valve (15) is also linked to the hydraulic control (20) of said sequence valve (19), and whereby a preset pressure drop is produced between the spring element (18) of said adjusting device (17) and the bistable valve (15), and said adjusting device (17) is linked to the pressure side of said pumps (10).

2. A device in accordance with claim 1 characterized in that the preset pressure drop is technically produced by means of a suitable valve (21) arranged in a selected section of the link (22) between said sequence valve (19) and said bistable valve (15) or of the link (23) between the sequence valve (19) and said spring element (18) of said adjusting device (17).

REPLACED BY  
ART 34 AMDT